Taxonomic notes on the genus *Mordellistenoda*(Coleoptera: Mordellidae), with description of four new species from Southeast Asia

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アカヒメハナノミ属の分類と東南アジアの4新種について (鞘翅目:ハナノミ科)

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抄録:中国・福建省産の特徴的な1種に基づいて1941年に創設されたアカヒメハナノミ属 (Mordellistenoda)は、これまでに東アジアからオーストラリアにかけて、7種が知られている.しかし、そのなかには、創設当時の属の概念を拡張させて所属している種がある.本稿では日本産の1種と東南アジア産の4新種について、詳しく形態の比較を行い、本属の分類について整理を試みた.

Abstract: *Mordellistenoda*, a peculiar mordellid genus, was erected on the basis of a characteristic species from southern China, and subsequently 7 species from East Asia to Australia have so far been referred. Some of them, however, seem to be included in that genus by more or less extended generic concept. In this paper, I describe four new species, make morphological comparison among five species, and discuss the generic circumscription.

Key Words: Coleoptera; Mordellidae; Mordellistenoda; new species; Southeast Asia; taxonomy.

Ermisch (1941) erected the genus *Mordellistenoda* based on *M. fukiensis*, a characteristic new species from southern China. The species possessed peculiar maxillary palpi in male and hind tibial spurs of equal length, and those characters are very unique among the taxa of the tribe Mordellistenini. Nakane (1960) studied the male genitalia of *M. aka*, a very closed species to *M. fukiensis*, and revealed that they represented peculiar form. It is understandable that Ermisch (1941) erected a new genus based on the restricted materials.

Ermisch (1963), however, added a new species from Australia, basing only on the agreement with *M. fukiensis* in the character of maxillary palpus in male, though they are different in other several important characters. The treatment meant that the generic concept was extended by himself. Batten (1990) also described two new species from New Guinea, basing on rather an extended generic concept. Thus, the generic concept of *Mordellistenoda* has somewhat been confusing.

In this paper, I describe four new species from Southeast Asia with taxonomical notes and rearrange the generic problems.

Abbreviations of the depositories

URN: Prof. Seiji Azuma, College of Agriculture, University of the Ryukyus, Nishihara, Okinawa, Japan.

FRIM: Forest Research Institute Malaysia, Kepong, Kuala Lumpur, Malaysia.

NIAES: Laboratory of Insect Systematics, National Institute of Agro-Environmental Science, Tsukuba, Ibaraki Pref., Japan.

OHTSC: Mr. Isao Ohtsuka, Onoue 3-chome, Kumamoto, Japan.

OMNH: Osaka Museum of Natural History, Nagai park 1-23, Higashi-sumiyoshi-ku, Osaka, Japan.

YAMAC: Mr. Eiji Yamamoto, Oda-cho, Ehime Pref., Japan.

YOSHC: Mr. Motoshige Yoshida, Sato, Yura-cho, Wakayama Pref., Japan.

Genus Mordellistenoda Ermisch, 1941

Mordellistenoda Ermisch, 1941: 715.

Type species. Mordellistenoda fukiensis Ermisch, 1941: 722.

Distribution. Japan (except Hokkaido and Ogasawara Iss.), Taiwan, southeast China, northern India, Malay Peninsula, Borneo Is., New Guinea Is.

Mordellistenoda fukiensis Ermisch, 1941

Mordellistenoda fukiensis Ermisch, 1941: 722.

Distribution. Fujian Prov., China.

Remarks. Nakane (1957b) suggested that this species may be a junior synonym of the following species, *M. aka*.

No material was available for the present study.

Mordellistenoda aka (Kôno, 1928)

(Fig. 1)

Mordellistena aka Kôno, 1928: 43.

Glipostenoda aka: Nomura, 1951: 69.

Mordellistenoda aka: Nakane, 1957b: 50; Nakane, 1960: 17.

Japanese name: Aka-hime-hananomi

Materials examined. [Japan (Honshu)] 1 ♂, Tomogashima Is., Wakayama Pref., 23.vii.1982, M. Yoshida leg. (YOSHC). [Japan (Shikoku)] 1 ex., Mt. Ohtaki, Tokushima Pref., 4.viii.1972, M. Sakai leg. (OMNH); 1 ex., Yoshinogawa, Oda-cho, Ehime Pref., 21.vii.1993, K. Aita leg. (YAMAC); 1 ♂&1 ♀, Oda-cho, Ehime Pref., 3.viii.1994, E. Yamamoto leg. (OMNH); 1 ex., Oda-cho, Enime Pref., 7.vii.1994, E. Yamamoto leg. (YAMAC). [Japan (Kyushu)] 1 ♂, Ichinomata, Itsuki-mura, Kumamoto Pref., 1.viii.1982, I. Ohtsuka leg. (OHTSC); 1 ex., Mt. Kinpou, Kumamoto City, 5.vii.1990, I. Ohtsuka leg. (OHTSC). [Japan (Nansei Iss.)] 1 ♀, Haneji, Okinawa Is., 10.viii.1979, S. Azuma leg. (URN); 1 ex., Trans-island Road nr.

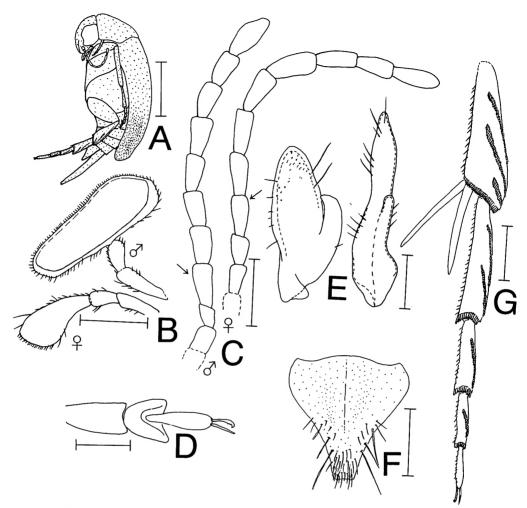


Fig. 1. Mordellistenoda aka (Kôno)— A, Lateral view; B, maxillary palpi; C, antennae (4th segment arrowed); D, distal segments of fore tarsus; E, parameres of male genitalia; F, 8th abdominal urosternum; G, hind leg. Scales: 0.25mm, except for D and E of 0.1mm and A of 1.0mm.

Ôtomi, Iriomote Is., alt. 40m, 12.x.1988, M. Sakai leg. (OMNH). [Taiwan] 1 ex., Nanshanchi, Nantou Hsien, 27.v.1972, M. Sakai leg. (OMNH).

Body length: 3.3-4.2mm.

Distribution. Japan (Honshu Shikoku, Kyushu Tsushima Is. and Nansei Iss.), Taiwan.

Affinities. This species is allied to M. *notialis*, which is newly described later, but can be distinguished from it by the larger body size, the shape of maxillary palpus and male genitalia.

Mordellistenoda sp.

I could obtain a male specimen from Bengal, northern India, with the following characters: yellowish to reddish coloration on whole body, 2 ridges on 2nd hind tarsal segment and somewhat large body size. This specimen may show the western border of the range of the genus, but the description will be made in another

opportunity basing on additional material.

Material examined. 1 ♂, Darjeeling (2100m), W. Bengal, India, 27.ix.1983, M. Sakai leg. (OMNH).

Mordellistenoda notialis sp. nov.

(Fig. 2)

Description. Coloration (Fig. 2-A) basically yellowish brown; head, pronotum and elytron sometimes reddish brown. Hairs on almost whole body yellowish with luster; on head, pronotum and elytron sometimes darker.

Eye rather circular, somewhat large, pubescent and emarginate at buccal margin, facets somewhat coarse. Tempora very narrow. Antenna (Fig. 2-D) normally long in both sexes, somewhat serrate, 4th segment much larger than 3rd and almost the same in form as 5th, each 4th to 10th segment about 1 to 1.3 times as long as wide. Maxillary palpus sexually dimorphic (Fig. 2-B); terminal segment in male oblong, articulation shifted to center at inner basal side, frontal surface rather largely extended forward, hollowed and granulated, with hairs on frontal margin (*Mordellistenoda*-type), terminal segment in female securiformed with wider apical margin (*Mordellistena*-type); penultimate segment not dilated in both sexes. Pronotum a little wider than long, lateral margin a little sinuated in profile and converging anteriorly in dorsal aspect, anterior angle broadly rounded, posterior angle nearly rectangular and rounded at vertex, apical and basal margins normally protrudent.

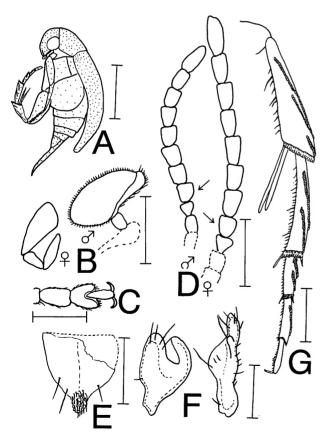


Fig. 2. Mordellistenoda notialis sp. nov.— A, Lateral view; B, maxillary palpi; C, distal segments of fore tarsus; D, antennae (4th segment arrowed); E, 8th abdominal urosternum; F, parameres of male genitalia; G, hind leg. Scales: 0.25mm, except for C and F of 0.1mm and A of 1.0mm.

Elytra 2.4 times as long as their humeral breadth, 2.8 times as long as pronotum. Apical margin of anal sternum obtuse without excision in both sexes. Pygidium normally long, acuminate, almost 2/5 as long as elytron, feebly bent dorsally.

Penultimate segment of fore tarsus (Fig. 2-C) dilated, almost as long as wide, much emarginate at dorso-apical margin and jointed with terminal segment at the center of dorsal surface. Penultimate segment of middle tarsus similar to that of fore tarsus. Outer spur on hind tibia almost as long as inner one. Hind leg (Fig. 2-F) with rather long and oblique ridges, formulated as 3, 2, 2, 1: Tibia provided with 3 long and oblique ridges, Basal one the longest and nearly reaching to tibial articulation; both 1st and 2nd tarsi with 2 very oblique ridges respectively, 3rd tarsus with a very oblique ridge.

Eighth abdominal urosternum in male almost as long as wide, apical lobe narrowly protrudent with dense hairs, apex rounded.

Parameres of male genitalia (Fig. 2-E) rather peculiar among the tribe Mordellistenini; left paramere without ventral branch, basal process clearly recognizable; right paramere rather normal form, with thick main lobe, ventral branch stout.

Body length: 2.4-3.1mm.

Holotype. ♂, Pasoh Forest Reserve, Negeri Sembilan, W. Malaysia, 3-9.iv.1993, Fine Malaise Trap, K. Konishi & K. Maeto leg. (FRIM).

Paratypes. 1 ex., the same locality and the collectors as the holotype, Coarse MT, (NIAES); 3 exs., ditto, 25.iii-2.iv.1993, Coarse MT (NIAES); 2 exs., ditto, 2-8.iv.1993, Fine MT (OMNH); 1 ex., ditto, 8-15.iv.1993, Fine MT (FRIM); 1 ex., ditto, 9-16.iv.1993, Fine MT (NIAES).

Distribution. Malay Peninsula.

Affinities. This species may resemble *M. aka* in yellowish coloration on whole body, but can be distinguished from it by rather smaller eye without emargination, smaller body size, the shape of maxillary palpus and male genitalia.

Mordellistenoda nigricans sp. nov.

(Fig. 3)

Description. Coloration (Fig. 3-A) basically blackish brown; buccal parts, antenna, fore and middle legs and hind tibial spurs yellowish to reddish brown; hind leg, apical halves of abdominal sterna and pygidium reddish to darkish brown. Hairs on almost whole body brownish with a little luster.

Eye oval, pubescent, without emargination at buccal margin, facets a little coarse. Tempora very narrow. Antenna (Fig. 3-F) normally long in both sexes, somewhat serrate, 4th segment much larger than 3rd and almost the same in form as 5th, each 4th to 10th segment about 1.4 times as long as wide. Maxillary palpus sexually dimorphic (Fig. 3-D), terminal segment in male rather wide reniform, articulation shifted to center at inner basal side, frontal surface rather developed, hollowed and granulated, with hairs on frontal margin (*Mordellistenoda*-type), terminal segment in female thinly securiformed (*Mordellistena*-type); penultimate segment not dilated in both sexes. Pronotum a little wider than long, lateral margin a little sinuated in profile and converging anteriorly in dorsal aspect, anterior angle broadly rounded, posterior angle nearly rectangular and rounded at vertex, apical and basal margins normally protrudent. Elytra 2.4 times as long as their humeral breadth, 2.8 times as long as pronotum. Apical margin of anal sternum obtuse without excision in both sexes. Pygidium normally long, acuminate, almost 2/5 as long as elytron, feebly bent dorsally.

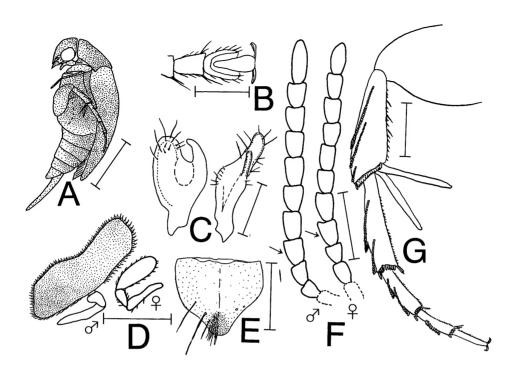


Fig. 3. *Mordellistenoda nigricans* sp. nov.— A, Lateral view; B, distal segments of fore tarsus; C, parameres of male genitalia; D, maxillary palpi; E, 8th abdominal urosternum; F, antennae (4th segment arrowed); G, hind leg. Scales: 0.25mm, except for B and C of 0.1mm and A of 1.0mm.

Penultimate segment of fore tarsus (Fig. 3-B) dilated, almost as long as wide, much emarginate at dorso-apical margin and jointed with terminal segment at the center of dorsal surface. Penultimate segment of middle tarsus similar to that of fore tarsus. Outer spur on hind tibia almost as long as inner one. Hind leg (Fig. 3-G) with rather long and oblique ridges, formulated as 3, 2, 2, 1: Tibia provided with 3 long and oblique ridges, basal one the longest and nearly reaching to tibial articulation: Both 1st and 2nd tarsi with 2 very oblique ridges respectively, 3rd tarsus with 1 very oblique ridge.

Eighth abdominal urosternum in male (Fig. 3-E) a little wider than long, apical lobe protrudent with dense hairs, apex rounded.

Parameres of male genitalia (Fig. 3-C) rather peculiar among the tribe Mordellistenini; left paramere without ventral branch, basal process clearly recognizable; right paramere rather normal form with thick main lobe, ventral branch stout.

Body length: 2.3-3.0mm.

Holotype: ♂, Pasoh Forest Reserve, Negeri Sembilan, W. Malaysia, 26.iii.-3.iv.1993, Coarse MT, K. Konishi and K. Maeto leg. (FRIM).

Paratypes: 1 ex., same locality as the holotype, 3-9.iii.1993, Coarse MT (OMNH); 3 exs., ditto, Fine MT (NIAES); 1 ex., ditto, 8-15.iv.1993, Fine MT (OMNH); 2 exs., ditto, 9-16.iv.1993, Coarse MT (FRIM); 1 ex., ditto, Fine MT (OMNH); 3 exs., ditto, 26.iii-3.iv.1993, Coarse MT (OMNH).

Distribution: Malay Peninsula.

Affinities: This species may be somewhat allied to *M. memnonia*, which is newly described later, in blackish coloration on whole body, but can be distinguished from the latter by shorter antenna, shape of maxillary palpus in male, number of ridges on 3rd tarsus of hind leg and male genitalia. A preceding new species *M. notialis* of yellowish to reddish coloration much resembles to this species morphologically.

Mordellistenoda ismayi Batten, 1990

Mordellistenoda ismavi Batten, 1990: 140.

Distribution. New Guinea.

Affinities. This species can be distinguished from the following new species by black elytron and basal 3 sterna, and from the other congeners by absence of 3rd tarsal ridges.

Remarks. No material was available for the present study.

Mordellistenoda atrilimbata sp. nov.

(Fig. 4)

Description. Coloration (Fig. 4-A) basically yellowish brown, head and pronotum reddish brown, elytron usually dark brown with paler posterio-sutural margin, sometimes paler in basal half, rarely blackish from base to apex; spines on apical margin of anal sternum and hind tibial ridges black. Hairs on almost whole body yellowish; head, pronotum, elytron and apical half of abdominal sterna brownish to blackish.

Eye rather circular, somewhat large, pubescent, without emargination, facets somewhat coarse. Tempora very narrow. Antenna (Fig. 4-D) normally long in both sexes, somewhat serrate, 4th segment much larger than 3rd and almost the same in form as 5th, each 4th to 10th segment about 1.5 times as long as wide. Maxillary palpus sexually dimorphic (Fig. 4-B), terminal segment in male widely ovate, articulate at inner basal side, frontal surface rather largely extended forward, hollowed and granulated, with hairs on frontal margin (*Mordellochroa*-type), teminal segment in female securiformed with narrow apical margin (*Mordellistena*-type); penultimate segment not dilated in both sexes. Pronotum a little wider than long, lateral margin a little sinuated in profile and converging anteriorly in dorsal aspect, anterior angle broadly rounded, posterior angle nearly rectangular and rounded at vertex, apical and basal margins normally protrudent. Elytra 2.2 times as long as their humeral breadth, 2.8 times as long as pronotum. Apical margin of anal sternum obtuse without excision in both sexes, furnished with black and short ridges. Pygidium rather long and slender, acuminate, almost 1/2 as long as elytron, feebly bent dorsally.

Penultimate segment of fore tarsus (Fig. 4-C) dilated, almost as long as wide, much emarginate at dorso-apical margin and jointed with terminal segment at the center of dorsal surface. Penultimate segment of middle tarsus similar to that of fore tarsus. Outer spur on hind tibia almost as long as inner one. Hind leg (Fig. 4-F) with rather long and oblique ridges, formulated as 3, 3, 2, 0: Tibia provided with 3 long and oblique ridges, basal one the longest and nearly reaching to tibial articulation: Both 1st and 2nd tarsi with 3 and 2 very oblique ridges respectively, 3rd tarsus without ridge.

Eighth abdominal urosternum in male unknown.

Parameres of male genitalia (Fig. 4-E) rather peculiar in the tribe Mordellistenini; left paramere without ventral branch, basal process clearly recognizable; right paramere rather normal form with thick main lobe,

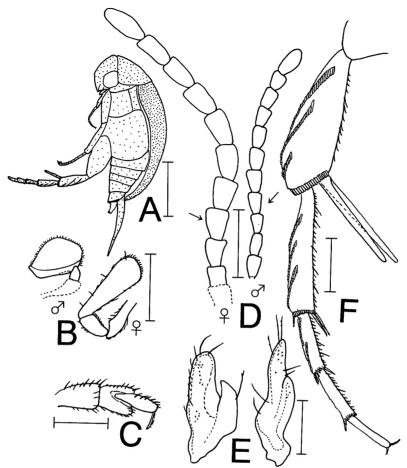


Fig. 4. *Mordellistenoda atrilimbata* sp. nov.— A, Lateral view; B, maxillary palpi; C, distal segments of fore tarsus; D, antennae (4th segment arrowed); E, parameres of male genitalia; F, hind leg. Scales: 0.25mm, except for C and E of 0.1mm and A of 1.0mm.

ventral branch short and stout.

Body length: 2.3-3.4mm.

Holotype. ♂, Bukit, Soeharto, Kalimantan, Indonesia, Malaise Trap, 17-26.iii.1994, K. Konishi leg. (NIAES).

Paratypes. $1 \stackrel{\circ}{+}$, the same datum as the holotype (NIAES); $1 \stackrel{\circ}{+}$, Pasoh Forest Reserve, Negeri Sembilan, W. Malaysia, Coarse Malaise Trap, 25.iii-2.iv.1993, K. Konishi & K. Maeto leg. (FRIM); $1 \stackrel{\circ}{+}$, the same locality and the collector, Fine MT, 9-16.iv.1993 (OMNH).

Distribution. Borneo, Malay Peninsula.

Affinities. This species is much closely related to *M. ismayi* from New Guinea because they commonly possess maxillary palpi of *Mordellochroa*-type in male, the formulation of ridges as 3, 3, 2, 0, and needle-like pygidium, but can be distinguished from it by paler coloration on elytron and basal 3 sterna of abdomen.

Mordellistenoda memnonia sp. nov.

(Fig. 5)

Description (male). Coloration (Fig. 5-A) basically blackish brown; buccal parts, antenna, fore and middle legs and hind tibial spurs yellowish to reddish brown; hind leg, apical sterna of abdomen and pygidium reddish to darkish brown. Hairs on almost whole body brownish with luster.

Eye oval, pubescent, without emargination, facets somewhat coarse. Tempora very narrow. Antenna (Fig. 5-B) rather long, filiformed and feebly serrate, 4th segment almost as large as 3rd and a little smaller than 5th, each 5th to 10th segment about 2.7 times as long as wide. Maxillary palpus certainly sexually dimorphic (Fig. 5-D), terminal segment in male somewhat narrow reniform, articulate on inner basal side, frontal surface hollowed and granulated, but less developed, with hairs on frontal margin (*Mordellochroa*-type); penultimate segment not dilated. Pronotum a little wider than long, lateral margin a little sinuated in profile and converging anteriorly in dorsal aspect, anterior angle broadly rounded, posterior angle broadly rounded, apical and basal margins normally protrudent. Elytra 2.4 times as long as their humeral breadth, 2.8 times as long as

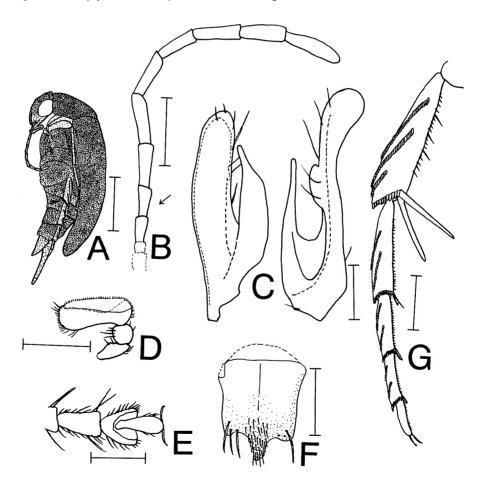


Fig. 5. Mordellistenoda memnonia sp. nov.— A, Lateral view; B, antenna (4th segment arrowed); C, parameres of male genitalia; D, maxillary palpus; E, distal segments of fore tarsus; F, 8th abdominal urosternum; G, hind leg. Scales: 0.25mm, except for C and E of 0.1mm and A of 1.0mm.

pronotum. Apical margin of anal sternum obtuse without excision. Pygidium a little short, almost 1/3 as long as elytron.

Penultimate segment of fore tarsus (Fig. 3-E) dilated, almost as long as wide, much emarginate at dorso-apical margin and jointed with terminal segment at the center of dorsal surface. Penultimate segment of middle tarsus almost similar to that of fore tarsus. Outer spur on hind tibia almost as long as inner one. Hind leg (Fig. 5-G) with rather long and oblique ridges, formulated as 3, 2, 2, 2: Tibia provided with 3 long and oblique ridges, basal one the longest and nearly reaching tibial articulation: Both 1st and 2nd tarsi with 2 very oblique ridges respectively, 3rd tarsus also with 2 very oblique ridges.

Eighth abdominal urosternum in male (Fig. 5-F) a little longer than wide, apical lobe protrudent with dense hairs and apex rounded, with a little protrudent lateral wing.

Parameres of male genitalia (Fig. 5-C) rather normal form in Mordellistenini; left paramere with stout and acuminate ventral branch, basal process present; right paramere rather normal form, with thick main lobe, ventral branch stout and apically tapering.

Female unknown.

Body length: 3.6mm.

Holotype. ♂, Headquarters (alt. 1500-1700m), Mt. Kinabalu, Sabah, Borneo, E. Malaysia, 28.iii.1976, S. Nagai leg. (OMNH).

Distribution. Borneo.

Affinities. This species may resemble to *M. nigricans* which is described above in blackish coloration on almost whole body, but can be distinguished from it by rather longer antenna, male maxillary palpus of *Mordellochroa*-type, the formulation of ridges on hind leg and male genitalia.

Remarks. This species is somewhat different from the other species of the genus as discussed below in Considerations.

Considerations

Among the species treated in this paper, M. aka, M. nigricans and M. notialis are certainly typical species of Mordellistenoda. On the other hand, one of the new species, M. atrilimbata is a little different from them in the form of maxillary palpi in male and in lack of 3rd tarsal ridge on hind leg, but the formation of hind tibial ridges, hind tibial spurs of equal length and the shape of parameres of male genitalia represent the characters of the typical Mordellistenoda. Since the maxillary palpus of Mordellistenoda-type was probably transformed from Mordellochroa-type by extension of the granulated frontal surface outwards thus two characters of maxillary palpi are somewhat similar, M. atrilimbata and its allied species, M. ismayi, can undoubtedly be included in the range of the genus.

M. memnonia agrees with the typical Mordellistenoda species only in such characters as the hind tibial spurs and the formation of ridges, otherwise disagrees. In particular, the male genitalia represent rather normal form of the tribe Mordellistenini. It is suggested that this species will be transferred to another genus after full inspection of the adjacent genera. On the same reason, I have to treat the following species as pending, because they are not typical according to the description and no material was available for the present study: M. australiensis Ermisch, 1963 [northern Australia], M. ohsumiana (Nakane, 1957a) [Japan: Honshu to Nansei Iss.)], M. trapezoides Batten, 1990 [New Guinea] and M. melana Fan et Yang, 1995 [China: Zhejiang].

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